

sonian Institution embrace specimens of *Thalassidroma Leachii* killed about Washington in August 1842, with hundreds of others. I myself obtained at Harrisburgh, Penn., a fine adult Pomarine Skua (*Cataractes pomarinus*), killed on the Susquehanna, near that city, in September 1839. Adults of the species mentioned are rarely seen within the limits of the United States at all, and in summer the latter would hardly be likely to occur south of Newfoundland.

The present is not the occasion to discuss the nature of that impulse which causes the bird or the fish to retrace its steps in spring so unerringly; the fact is a well-established one, and of much importance in reference to the multiplication or diminution of species. A region deprived of its spring birds or fishes by extermination will only be filled up again in the course of a long period of time. The result, however, can be greatly accelerated by artificial propagation in the places to be supplied.

It may be considered established that the migrations of birds are generally more or less in a north and south direction, influenced very materially by river-courses, mountain-chains, forests, conditions of moisture, mean temperature, altitude, &c. Middendorf (Die Isepiptesen Russlands) suggests that birds migrate in the direction of the magnetic pole—a suggestion not at all borne out by the facts in North America.

It may be further remarked that while birds proceed generally in the spring to the very spot of birth, and by a definite route, their return in autumn is not necessarily in the same line. Many birds are familiar visitors in abundance, in certain localities, in either spring or autumn, and are not known there in the other season. This is a fact well known to the diligent collector; and I have been inclined to think that, in very many instances, birds proceed northward along the valley of the Mississippi, to return along the coast of the Atlantic.

In general the northward vernal movement is performed much more rapidly, and with fewer stops by the way, than the autumnal.

Birds generally make their appearance in given localities with wonderful regularity in the spring, the *Sylvicolidæ* especially—a difference of a few days in successive years attracting the notice of the careful observer; this difference is generally influenced by the season. The time of autumnal return is perhaps less definite.

*Observations on the Microscopic Shell-structure of Spirifer cuspidatus, Sow., and some similar Forms.* By F. B. MEEK.

Mr. Meek shows in a paper in Proc. Acad. Nat. Sc. Philad. 1865, p. 275, that the shell of the *Spirifer cuspidatus*, both of American specimens referred to this species, or closely related, and of an Irish specimen of this species received from Mr. Davidson, is clearly punctate, contrary to the decision of Dr. Carpenter. He then asks the question whether two types—a punctate having the internal characters of *Syringothyris*, and an impunctate—may not be included under the species, and suggests the importance of observations with reference to this question.—Silliman's *American Journal*, May 1866.